REMARKS

Claims 6, 8-11, 13-15, 20, and 23-27 are pending in the application. Reconsideration and allowance of Applicant's claims are respectfully requested in view of the following remarks.

Claims 6, 9-11, 14, 15, 20, and 24-27 were rejected under 35 U.S.C. § 103(a) as allegedly being unpatentable over U.S. Patent No. 6,721,334 to Ketcham et al. ("Ketcham") in view of U.S. Publication No. 20004/0018016 to O'Mahony et al. ("O'Mahony"). This rejection is respectfully traversed.

Applicant's independent claim 6 recites, and independent claims 11 and 20 similarly recite, among other things, "...**aggregating** at least **two data packets having** a same destination address and **identical quality of service information** among the plurality of received data packets to form a single aggregated packet." Similarly, claims 26 and 27 recite, aggregating at least two data packets having a same destination address and **identical quality of service (QoS) parameters** among the plurality of received data packets.

Ketcham describes a system and method for a packet-based network using aggregate packets. Ketcham describes determining which network devices support aggregate packets. If a first packet is received on a route that supports aggregate packets, it is then held for a short period. During this short period, if an additional packet is received that shares at least one common route element that also supports aggregate packets with the first packet, the first packet and the additional packet are combined into a single larger aggregate packet.

However, <u>Ketcham does not describe</u> aggregating at least two data packets having a same destination address and identical quality of service information from among the plurality of received data packets to form a single aggregated packet. The Office appears to agree that Ketcham is silent with regard to quality of service being used during aggregation.

Accordingly, the Office Action asserts newly cited O'Mahony as allegedly providing this feature. Applicant respectfully disagrees as outlined below.

O'Mahony describes an optical packet switch that facilitates efficient provisioning of packet services through a predominantly circuit-switched optical transport network infrastructure. In particular, the optical packet switch fits within a network where circuit and packet-switched traffic are transported together through the optical transport network. Fast

switching is provided for packet traffic where granularity below the wavelength level is required, while slow wavelength switching and routing is facilitated at the same time. Packet traffic is aggregated where the optical transport network interfaces with the IP domain, which requires dynamic and fast wavelength allocation for packet traffic.

In particular, the Office Action states that, O'Mahony describes a packet system where packets are combined based on destination address and QOS parameters, citing O'Mahony paragraph [0040]. The Action goes on to assert it would have been obvious to combined packets based on destination and QoS parameters, as taught by O'Mahony, for the purpose of maintaining quality of service and using channels capacity wisely.

First, it appears the section of O'Mahony in question **does not in fact disclose or suggest** "...**aggregating** at least **two data packets having** a same destination address and **identical quality of service information** among the plurality of received data packets to form a single aggregated packet." Instead, paragraph [0040] of O'Mahony merely discloses as follows:

> A schematic representation of the various stages in the operation of an OPS as an edge aggregator/router is shown in FIG. 3. In a first step 100 the OPS accepts packet type traffic from the service layer, i.e. IP and ATM traffic, from a number of sources. These packets are associated with the MPLS control plane. The multiple sources are signified by different header shadings in FIG. 3. In the next step 110 the input packets are aggregated based on destination and Quality of Service (QoS) parameters, and are formed into optical packets with OMPLS labels that signify destination and QoS class. These OMPLS labels are generated locally by an OMPLS control plane that functions as an intermediate control plane between the MPLS control plane associated with the IP domain and the MpλS control plane associated with the OTN. FIG. 3 shows optical packets with two destinations with two QoS classes, giving three different label values. The optical packets are of variable length but all are an integer multiple of a chosen time unit. In a final step 120, the optical packets are switched to an appropriate wavelength channel and a new label is written into the optical packet so that it is compatible with the MpλS control plane of the OTN. The optical packets are then routed over the OTN on particular wavelengths to deaggregating nodes that are egress points from the OTN or to intermediary nodes that further map the optical packets onto new wavelength paths. Contention resolution is based on QoS class implied from the label on the optical packets. During the whole process the OPS runs a protocol capable of discovering the OXC network topology, and thus is able to combine aggregation with QoS provisioning within the OTN.

In particular, Applicant points out that O'Mahony describes with regard to FIG. 3 that optical packets with two destinations with two QoS classes, give three different label values. The

packets are formed into optical packets with OMPLS labels that signify destination and QoS class. Applicant notes that O'Mahony aggregates packets based on a QoS class, but does not **does not disclose or suggest**, the packets are aggregated to have **identical** quality of service information or parameters. It is noted that even in the Office Action does not assert this of O'Mahony. O'Mahony only describes the generation of labels based on a QoS class. Therefore, even if it is assumed that it is proper to combine O'Mahony with Ketcham, the combination does not describe all of Applicant's claimed elements.

<u>Second</u>, although the Office Action alleges that O'Mahony is in the same field of endeavor, O'Mahony is directed to Optical networks. In particular, O'Mahony describes that current OXCs support continuous data streams and are not fast enough to support packet-by-packet switching. Therefore, the entire traffic on any OCH at an input port in an OXC is switched to one output port. O'Mahony notes that this is an undesirable as IP traffic, for example, cannot be constructed as a continuous data stream. Since the OTN only supports continuous data streams, it offers granularity only at the wavelength level. Thus if the channel traffic is bursty the channel capacity may be underused, which has an impact on the dimensioning of the network and the size of the OXCs required. In hybrid communications networks including an electronic network and an optical network, a uniform control strategy is needed.

As a result, O'Mahony points out one of the main disadvantages of an OTN is that there is currently no mechanism to provide direct access to the OTN with bandwidth granularity that is finer than a whole wavelength, and that "Providing this finer granularity is central to creating a network that is efficient, from the perspective of the operator, and cost effective, for the operators customer." (See O'Mahony paragraph [0035]). O'Mahony solves this by using external electronic routers and OPSs that handle the same granularity (per packet), which will lead to an integrated control plane between the IP and the OTN domains. At the same time, each OPS maintains information on the configuration, the physical infrastructure, the topology and scale of the OXC transport. Therefore, the OPS of O'Mahony is able to isolate the OTN from the service layer while interfacing fully with both layers, i.e., with the data/IP domain through integrated management control, and with the OTN by maintaining information on the configuration, the physical infrastructure, the topology and scale of the OXC transport (See, e.g.,

paragraph [0034]). The edge aggregator router of Fig. 3 performs this function. So O'Mahony teaches an aggregation technique to provide direct access to the OTN with bandwidth granularity that is finer than a whole wavelength.

In contrast, at col. ll. 15-29, Ketcham notes that if the actual size of most packets is significantly less than the maximum size, the network is not operating at maximum efficiency. This is because Ethernet is a carrier sense multiple access (CSMA) protocol with collision detection (CD). The transmission times are setup based on the maximum packet size and a maximum cable length. Contention periods for access to the common transmission medium are placed in between the packet transmission slots. This means that the packet sizes for higher speed Ethernet protocols are larger, or the maximum cable length must be shortened. Additionally, the contention period between transmission of successive packets adds another delay to the transmission of data. On an IEEE 802.3, standard 10 Mbps Ethernet, the per packet overhead is 20.8 μsec and there is a minimum 9.6 μsec gap between packets. Therefore, Ketcham describe an aggregation technique that allows the bandwidth of a common medium to be more fully used because more of the packets will be closer to the maximum size allowed.

Furthermore, O'Mahony describes that various types of packets outputted from an upper layer in an optical network(i.e., the service layer) are aggregated in a multiprotocol label switching (MPLS) control plane. (See, e.g., O'Mahony paragraph [0040]: in a first step 100 the OPS accepts packet type traffic from the service layer, i.e., IP and ATM traffic, from a number of sources. These packets are associated with the MPLS control plane.). In contrast, Ketcham describes aggregation on an Ethernet layer and only aggregates the packets with in a same layer. Therefore, the multilayer system of O'Mahony may not readily be combined Ketcham.

It is respectfully submitted that Ketcham is not directed to Optical Networks and that that one of ordinary skill in the art would not have looked to O'Mahony for an optical network technique. Moreover, the technique of O'Mahony would thwart the intended purpose of Ketcham to provide optimum use of packets by size which is important in contention resolution for the network described. Therefore, Applicant asserts that it would not have been obvious to render Ketcham unfit for its intended purpose.

<u>Third</u>, and finally, in The Court in *KSR v. Teleflex* held that a *prima facie* case of obviousness requires an apparent reason why a person of ordinary skill in the art would combine

the references, and that the analysis must be made explicit. *KSR v. Teleflex*, 550 U.S. 398 (2007). In addition, a rational must be provided for any modifications of the prior art. "[R]ejections on obviousness cannot be sustained by mere conclusory statements; instead, there must be some articulated reasoning with some rational underpinning to support the legal conclusion of obviousness." *KSR*, 550 U.S. at 399, 82 USPQ2d at 1396 quoting *In re Kahn*, 441 F.3d 977, 988, 78 USPQ2d 1329, 1336 (Fed. Cir. 2006). In this case, the reason provided by in the Office Action (i.e., "for the purpose of maintaining quality of service and using channels capacity wisely") is not apparent since the system of Ketcham already maintains quality of service by and using channels capacity wisely by aggregating and does not appear to be concerned with Quality of Service. In addition, Ketcham already discloses a technique for using channel capacity wisely. Therefore, it is not apparent why one of ordinary skill in the art would have modified Ketcham for a reason for something that Ketcham already does. In addition, no analysis, "explicit" or otherwise, is provided on how the proposed combination of references would provide the alleged "or the purpose of maintaining quality of service and using channels capacity wisely." Therefore, the Office Action has not met its burden to establish a *prima facia* case of obviousness.

Claims 9, 10, 14, 15 20, 24, and 25 depend from claims 6, 11, and 20, respectively, and in addition to features recited therein, are allowable for at least the reasons given above for claims 6, 11, and 20.

Claims 6, 9-11, 14, 15, 20, 24, and 25 recite features that are neither described nor suggested by Ketcham in view of O'Mahony, either alone or in combination, and the Office Action has not met its burden to establish a *prima facia* case of obviousness with regard to claims 6, 9-11, 14, 15, 20, 24, and 25. Therefore, claims 6, 9-11, 14, 15, 20, 24, and 25 are not obvious over Ketcham in view of O'Mahony, and it is respectfully requested that the rejection of claims 6, 9-11, 14, 15, 20, 24, and 25 be reconsidered and withdrawn.

Claims 8, 13, and 23 were rejected under 35 U.S.C. § 103(a) as allegedly being unpatentable over Ketcham in view O'Mahony and Applicant's alleged admitted prior art of Fig. 2. This rejection is respectfully traversed.

Claims 8, 13, and 23 depend from claims 6, 11, and 20, respectively. It is respectfully submitted that Applicant's admitted prior art does not provide for any of the deficiencies of

Ketcham or O'Mahony noted above with respect to claims 6, 11, and 20, and that these claims are believed to be allowable for at least the reasons given above for claims 6, 11, and 20.

As a result, the proposed combination fails to describe or suggest all of the elements of Applicant's claims 8, 13, and 23 therefore does not establish a *prima facia* case of obvious under Section 103 with regard to claims 8, 13, and 23. Therefore, reconsideration and withdrawal of this rejection is respectfully requested.

It is respectfully submitted that all claims are in condition for allowance, and early notice of the same is respectfully solicited. If any questions remain, the Examiner is invited to contact Applicant's representative at the telephone number listed above.